

protein tyrosine kinase].

76. (Amended) An isolated polynucleic acid molecule encoding a protein comprising an amino acid sequence selected from the group consisting of:

- (a) [an amino acid sequence comprising] Cys<sup>8</sup> through Cys<sup>421</sup> of SEQ ID NO:36,
- (b) [an amino acid sequence comprising] Cys<sup>44</sup> through Cys<sup>389</sup> of SEQ ID NO:38,
- (c) [an amino acid sequence comprising] Cys<sup>36</sup> through Cys<sup>417</sup> of SEQ ID NO:40, and
- (d) [an amino acid sequence comprising] Cys<sup>41</sup> through Cys<sup>337</sup> of SEQ ID NO:42,

wherein said protein is capable of binding to a glial cell line-derived neurotrophic factor or a neurturin neurotrophic factor such that the resulting protein/neurotrophic factor complex can bind to and induce phosphorylation of ret receptor protein tyrosine kinase.

D  
cont

77. (Amended) An isolated polynucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of:

- a) nucleotides of SEQ ID NO:35 encoding [Met<sup>1</sup> through Leu<sup>464</sup> of] SEQ ID NO:36,
- b) nucleotides of SEQ ID NO:37 encoding [Met<sup>1</sup> through Trp<sup>400</sup> of] SEQ ID NO:38,
- c) nucleotides of SEQ ID NO: 39 encoding [Met<sup>1</sup> through Leu<sup>460</sup> of] SEQ ID NO:40, or
- d) nucleotides of SEQ ID NO: 41 encoding [Met<sup>1</sup> through Trp<sup>397</sup> of] SEQ ID NO:42 [, wherein said molecule encodes a protein that is capable of binding to a neurotrophic factor such that the resulting protein/neurotrophic factor complex can bind to and induce phosphorylation of ret receptor protein tyrosine kinase].

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80. (Amended) An isolated [A transformed or transfected] host cell comprising a vector of claim 78.

81. (Amended) An isolated [A transformed or transfected] host cell comprising a vector of claim 79.

82. (Amended) An isolated [A transformed or transfected] host cell comprising a vector of

D<sup>2</sup> claim 78 wherein said host cell is selected from the group consisting of a mammalian cell [cells] and a bacterial cell [cells].

84. (Amended) A method for the production of a neurotrophic factor receptor protein, said method comprising the steps of:

(a) culturing an isolated [a] host cell, containing a polynucleic acid molecule encoding a protein comprising an amino acid sequence selected from the group consisting of

(i) [an amino acid sequence of] SEQ ID NO:36,  
(ii) [an amino acid sequence of] SEQ ID NO:38,  
(iii) [an amino acid sequence of] SEQ ID NO:40, and  
(iv) [an amino acid sequence of] SEQ ID NO:42,

D<sup>3</sup> under conditions suitable for the expression of said neurotrophic factor receptor protein by said host cell; and

(b) optionally, isolating said neurotrophic factor receptor protein expressed by said host cell [, wherein said protein is capable of binding to a neurotrophic factor such that the resulting protein/neurotrophic factor complex can bind to and induce phosphorylation of ret receptor protein tyrosine kinase].

87. (Amended) A method for the production of a neurotrophic factor receptor protein comprising the steps of:

D<sup>4</sup> (a) culturing an isolated [a] host cell containing [transformed or transfected with] a polynucleic acid molecule of [according to] claim 75, 76 or 77 under conditions suitable for the expression of said neurotrophic factor receptor protein by said host cell; and

(b) optionally, isolating said neurotrophic factor receptor protein expressed by said host cell.